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COMMITTEE REPORT

# Committee Report on Economic, Administrative and Legal Factors Influencing the Insurability and Employability of Patients With Ischemic Heart Disease

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This report reviews how government agencies and private industry use medical information related to ischemic heart disease. The key premises of this conference include the following:

- Ischemic heart disease exerts a significant economic impact on government and industry.
- Advances in medicine are only slowly translated into changes in administrative and legal guidelines.
- Failure of physicians to communicate pertinent information adversely affects the assessment of employability and insurability.
- Many practicing physicians need a better understanding of the administrative and legal guidelines affecting insurability and employability of patients with ischemic heart disease.

As many as 5.4 million Americans exhibit coronary artery disease, manifestations of chronic angina or healed myocardial infarction (1). Treatment of myocardial infarction accounts for the largest component of all hospitalization costs and foregone earnings due to cardiac disease (2).

## Factors Influencing Employability of Patients With Ischemic Heart Disease

Mandatory pre-employment physical examinations are rarely performed in the United States today. Employers, cautious about discrimination against individuals based on medical problems, prefer to carry out post-employment placement examinations. Exceptions to this practice are for those occupations in which sudden cardiac incapacitation of the individual could jeopardize the safety of the general public or co-workers. This group includes law enforcement officers, firefighters, airline pilots, air traffic controllers and commercial drivers. This report focuses on the return to work of employed patients with ischemic heart disease.

*The major factors influencing the work status of patients with ischemic heart disease are the presence or absence of angina or congestive heart failure, or both (3–7).* Other determinants include:

- Severity of heart disease: The number of myocardial infarctions, cardiac damage, severity of angina, complications and physical capacity influence return to work.
- Age: After age 50 years, fewer patients return to work.
- Gender: Women are more likely to withdraw from the work market.
- Social class/education: Those with lower levels of education are less likely to return to work.
- Occupation: Physical activity at work is a factor; manual laborers are less likely than office workers to return to work, although this may reflect psychological rather than physical factors.
- Perceived job stress: Many feel that their jobs contributed to their illness. Fewer return to an unpleasant job.
- Family income: The higher the nonwork income, and the better the disability or retirement benefits, the lower the likelihood of return to work.
- Emotional disturbances: Patients with feelings of anxiety, depression, pessimism, self-perception as being disabled are less likely to return to work.
- Residence (urban versus rural): There is a lower rate of return to work in rural areas, which may reflect the type of work performed.
- Labor market/unemployment/social benefits: Economic and social factors differ among regions of the country. The rate of return to work 12 months after acute myocardial infarction varies from 64% to 90%.
- Lack of cooperation by the employer, usually because of ignorance regarding the capacity for recovery. Economic factors motivate some employers to seek an employee's early retirement through an insured disability program rather than through the standard employer-funded retirement program.
- Attending physician's attitude: A negative attitude on the part of the personal physician may diminish the likelihood of return to work.
- Overprotection by the family: The family's lack of understanding of the patient's degree of recovery affects return to work.



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- Delay in evaluating patients.
- Lack of a cardiac rehabilitation program.
- Other medical problems.

A formal occupational work evaluation incorporating exercise testing performed 3 weeks after acute myocardial infarction hastened the return to work of clinically low risk patients (8). Patients undergoing the occupational work evaluation returned to work at a median of 51 days compared with 75 days in controls.

## *Programs for Establishing Disability from Ischemic Heart Disease*

The *American Medical Association Guide to the Evaluation of Permanent Impairment* stresses the difference between "impairment" and "disability." Whereas permanent impairment is a purely medical condition as evaluated by a physician, indicating "any anatomic or functional abnormality or loss," disability is an administrative judgment, indicating a patient's "actual or presumed ability to engage in gainful activity." Although permanent impairment is always considered in determining disability, other factors such as the patient's age, gender, education, personal motivation, type of employment and the economic and social environment must also be taken into account by the administrator when determining disability. More objective measures of functional capability and impairment need to be used in this process.

**1. Workers' Compensation**

This program evolved from the public's dissatisfaction with the manner in which job related disabilities were handled (9). The system was designed to provide appropriate treatment of work related injuries and prompt and effective disposition of disability cases. The programs are regulated by the states, which, in general, administer their laws through their court systems, a special commission or board or a combination of both. In Canada, administrative activities are carried out by a Provincial board.

Employers are required to provide specified benefits to employees incurring work-related injuries/disabilities. Most employers meet this obligation by obtaining Workers' Compensation insurance from a private insurance carrier or a state-administered insurance fund.

The escalating costs of Workers' Compensation insurance has become a source of concern to employers, insurers, regulators and legislators. Between 1982 and 1986, medical and indemnity losses increased 48% and 27%, respectively. In a 16 state study, the National Council on Compensation Insurance found that angina pectoris and heart attacks accounted for approximately 0.5% of Workers' Compensation cases involving "lost time" (1987). Although few in number, these cases were almost five times as expensive as the average claim (10).

**2. Second-Injury Funds**

These funds were developed to allocate more equitably the costs of providing disability benefits to workers with preexisting conditions. They were originally developed in response to rulings that an employer would have to bear the full costs of total disability for the loss of the crippled worker's remaining arm or leg. Such rulings discouraged employers from hiring or retaining handicapped individuals.

Employers pay compensation related primarily to the disability caused by the second injury alone. Almost half of the states limit second-injury funds to the loss, or loss of use, of a member or an eye. However, other states allow other preexisting injuries, including myocardial infarctions. Myocardial infarction is increasingly recognized as work related.

**3. Pertinent Federal Legislation**

**A. Age Discrimination in Employment Act of 1967 with amendments of 1978 and 1986.** This Act and its amendments prohibit discrimination in employment on the basis of age in such matters as hiring, job retention and compensation. In general, the Act protects workers who are 40 years of age or older. The Equal Employment Opportunity Commission has been charged with interpreting and implementing the Age Discrimination In Employment Act.

An exception to the general rule allows age to be used as a factor in employment decisions where the employer can show that age is a bona fide occupational qualification (BFOQ). Fire and law departments often seek to justify hiring or retirement age limitations as a BFOQ. The BFOQ exception requires an employer to demonstrate a link between the aging process and the demands of a particular job. To prove in court that age is a BFOQ for a particular job, the employer must show that 1) the continued health and safety of public safety officers, said to justify the imposition of an age limit, are essential to the essence of its business, and 2) the employer must rely on age as a proxy for the safety-related job qualifications established in the first prong. To do this, the employer must establish that it has a factual basis for believing that all or substantially all persons within the class would be unable to perform safely and efficiently the duties of the jobs involved, or that it is impossible or impractical to deal with persons over the age limit on an individual basis.

In approximately 20 suits brought by individuals and the Equal Employment Opportunity Commission (EEOC) against state and municipal departments, the courts have, generally, interpreted the BFOQ "escape clause" narrowly (11). Rulings have favored the EEOC in cases in which public safety agencies have not carried out physical screening (particularly with respect to the cardiovascular system) of newly hired workers, required proof of continued good health during employment, allowed exceptions for many physical problems or failed to show that age alone was an important factor in the performance of the job.

Legislation and legal decisions regarding fair employment

**Table 1.** Legislative Requirements

| Occupation | Country | Regulatory Agency | Regulations | Employability | Exam | Exercise Tolerance Test | Reference Source |
|---|---|---|---|---|---|---|---|
| Railroad engineers | U.S. | AARR | "Guidelines" | Some fulltime; some restricted | R | R | AARR |
| | Canada (freight only) | National | Yes | Same | R | R | CPCNRR |
| Commercial drivers, including Bus and Truck | U.S. | Bureau of Carrier Safety Sect. 391.41 (b) (4) | Yes | Some | R | S | 11 |
| | Canada | Provincial | Yes | Many | R | R | 19–21 |
| Private auto drivers | U.S. | States | Varying | Most | NR | NR | |
| | Canada | Provincial | Yes | Most | R | R | 19–21 |
| Civilian airmen | U.S. | FAA | Yes | Rare | R | R | 12 |
| Flight air traffic controllers | U.S. | FAA | Yes | Few | R | R | 13 |

AARR = Association of American Railroads; CPCNRR = Canadian Pacific and Canadian National Railroads; Exam = examination; FAA = Federal Aviation Authority; NR = not required; R = required; S = suggested.

practices have affected the hiring and retirement practices of most employers. Except in cases affecting public safety, employers cannot inquire as to a person's past or present medical status, but must accept the employee as is. Preemployment physical examinations have been largely replaced by post-employment examinations directed at the identification of preexisting health problems and appropriate job placement.

**B. Standards for public safety officers.** The thoroughness with which public safety officers are evaluated for the possibility of heart disease varies greatly.

*Police officers.* There are no national standards. The standards utilized by the Connecticut State Police are representative of many state and local department standards. New hires must be healthy; have a normal rest ECG; if over age 35, have a normal exercise test; have no more than 25% body fat (height and weight criteria are no longer used); complete an agility course; have uncorrected vision, no worse than 20/50 corrected to at least 20/30; have blood pressure of 140/90 or less; and have a serum cholesterol level of 240 mg/dL or less. After hire, there are neither mandatory nor ongoing standards for physical performance nor periodic examinations to determine current health status.

*Firefighters.* The National Fire Protection Association's publication "Firefighter Professional Qualifications" (1987 Edition) includes the following causes for rejection due to heart disease: valvular heart disease; myocardial infarction or angina pectoris; electrocardiographic (ECG) evidence of major arrhythmias, conduction defects, coronary insufficiency, myocardial infarction or heart muscle disease; cardiac hypertrophy or dilation; pericarditis, endocarditis or myocarditis (except for a single episode of idiopathic or Coxsackie pericarditis); persistent tachycardia of 100 or more. However, as with law enforcement agencies, it appears that most fire departments do not require continued good health after hire.

**C. "Heart laws".** As applied to police and firefighters, these laws state that the development of hypertension or heart disease is the result of their employment, without regard to medical evidence. Twenty-eight states have mandated such benefits for firefighters and nineteen states for police officers. Most states allow municipal employers to contest the job relatedness of the disability, in an effort to exclude patently ineligible claimants (12).

In states not allowing this "rebuttable presumption" provision, the costs of disability under the Heart Law have more than doubled in 5 years. In many states, myocardial infarction occurring during duty, is considered work-related, even if there is evidence of prior ischemic heart disease. These laws are increasingly burdensome to municipalities, an increasing number of which are unable to obtain Workers Compensation insurance. In the private sector, employees usually must prove that an unusual stress was the precipitating factor in the appearance or aggravation of underlying heart disease. Legislative requirements for other groups of individuals are summarized in Table 1.

**D. Disability criteria of the Social Security Administration for workers with ischemic heart disease (13).** Disability allowances for ischemic heart disease depend on the presence of typical anginal chest pain or status anginosis or variant angina of the Prinzmetal type along with objective evidence in the form of rest ECG changes, changes on treadmill exercise testing, obstructive lesions demonstrated by coro-

nary angiography, or impairment of left ventricular contractility demonstrated by left ventriculography.

*The specific characteristics of the typical anginal chest pain are:*

Precipitation by effort and relief by sublingual nitroglycerin, rapid acting nitrates, or rest. This pain is classically described as crushing, squeezing, burning, or oppressive chest pain that may also be felt in the throat, arms or hands.

If the medical evidence includes the results of a treadmill test, this evidence is the primary basis for adjudicating claims. *The criteria for a positive treadmill test are as follows:*

1. Horizontal or downsloping depression (from the standing control) of the ST segment to ≥1.0 mm in at least two consecutive complexes lasting for at least 0.08 s after the J junction; or
2. Junctional depression occurring during exercise, remaining depressed (from the standing control) to ≥2.0 mm for at least 0.08 s after the J junction (the so-called slowly upsloping ST segment) in two consecutive complexes; or
3. Premature ventricular systoles that are multiform or sequential (3 or more); or
4. ST segment elevation (from the standing control) to ≥1.0 mm; or
5. Development of second or third degree heart block.

*In the absence of an acceptable treadmill test, the following may be used as objective evidence:*

I. Rest ECG
   A. Evidence of transmural myocardial infarction; or
   B. Ischemic ST segment depression (≥0.5 mm); or
   C. Ischemic configuration or current of injury with ST segment elevation of ≥2.0 mm; or
   D. Symmetric T wave inversion of ≥5.0 mm in any two leads except III, aVR, $V_1$, $V_2$; or
   E. Inversion of T waves to ≥1.0 mm in any of leads II, aVL, $V_2$ to $V_6$ in the presence of an R wave of at least 5.0 mm in lead aVL and an R wave greater than the S wave in lead aVF; or
   F. Complete left bundle branch block unless there is a coronary angiogram of record that is negative.

II. "Double" Master Two-Step Test
   A. Ischemic ST segment depression of >0.5 mm lasting for at least 0.08 s beyond the J junction in at least two consecutive complexes in any lead; or
   B. Development of second or third degree heart block.

III. Cardiac Catheterization
   A. Angiographic evidence
      1. ≥50% narrowing of the left main coronary artery; or
      2. ≥70% narrowing of a proximal coronary artery (left anterior descending, left circumflex, right); or
      3. ≥50% narrowing of a long (>1 cm) segment of a proximal coronary artery (left anterior descending, left circumflex, right).
   B. Left ventriculography—abnormal wall motion and/or left ventricular ejection fraction of ≤30% measured by contrast or radioisotopic methods.

**Table 2.** Social Security Administration Statistical Data (15): Disability Allowances for All Causes

| Year | Disability Allowances | Men | Women | Age Distribution (men and women) (%) <35 yr | 35 to 49 yr | >50 yr |
|---|---|---|---|---|---|---|
| 1983 | 311,490 | 215,460 | 96,030 | 16.6 | 22.1 | 61.3 |
| 1984 | 357,140 | 243,949 | 113,191 | 15.9 | 23.5 | 60.6 |
| 1985 | 377,371 | 254,085 | 123,286 | 16.9 | 25.1 | 58.1 |
| Disability Allowances for Ischemic Heart Diseases | | | | | | |
| 1983 | 33,634 | 28,237 | 5,397 | 1.0 | 16.6 | 82.5 |
| 1984 | 34,223 | 28,227 | 5,996 | 0.8 | 15.9 | 83.2 |
| 1985 | 34,690 | 28,352 | 6,338 | 0.7 | 14.9 | 84.4 |

The degree of residual impairment is the primary factor used by the Social Security Administration in determining disability. However, determination of residual impairment is not a uniform process. For example, an individual complaining of chest pains, presumed to be angina, after a myocardial infarction is generally considered disabled even in the absence of an exercise treadmill test. Another individual with similar symptoms who completes stage 3 of the Bruce exercise test protocol after an acute myocardial infarction, may be denied disability. Uniform standards for objective determination of the degree of residual impairment are needed.

**The economic impact of Social Security Administration disability allowances.** Approximately 2.65 million disabled workers and 1.25 million dependents receive Social Security Administration disability payments at an annual cost of $17 billion. Approximately 30% of the total cost and 13% of total claims is due to cardiovascular disease.

Disability allowances granted by the Social Security Administration in fiscal years 1983, 1984 and 1985 are shown in Table 2.

## Factors Influencing Insurability of Patients With Ischemic Heart Disease

Insurance companies have the responsibility to treat all of their policyholders fairly by establishing premiums at a level consistent with the risk associated with the health status of the policyholder (14).

**Underwriting.** Underwriting is generally defined as the process by which an insurer determines whether or not and on what basis it will accept an application for insurance. The primary goal of underwriting is the prediction of future mortality and morbidity costs. Underwriting is necessary to prevent adverse selection, which is the tendency of persons with poorer than average health expectations to apply for insurance to a greater extent than persons with average or better health expectations. Antiselection results in inequitable treatment of the healthiest group because it results in the subsidization of high risk individuals by those at low risk.

The insurability (for life, health or disability coverage) of individuals with ischemic heart disease is based on an evaluation of the severity of the disease, both clinically and as indicated by laboratory studies. Significant risk factors for accelerated ischemic heart disease also influence prognosis and, therefore, influence insurability decisions.

*The following factors are considered in evaluating applications for insurance coverage:*

I. Age and gender

II. Clinical history
Myocardial infarction, number and severity; angina, stable/unstable, functional class; significant arrhythmias; congestive heart failure or other cardiac symptoms such as undue dyspnea on exertion, fatigue; cardiac enlargement i.e., heart size; need for medications i.e., vasodilators, beta-blockers, etc.; associated medical conditions such as hypertension, diabetes; angioplasty; aortocoronary bypass surgery with internal mammary artery or saphenous vein grafts, or both

III. Special studies
- ECG findings; i.e., residual changes of myocardial infarction, stability of ST-T configurations in successive tracings; exercise tests
- Exercise tests, including exercise-induced ischemia, arrhythmia; exercise tolerance; and blood pressure responses
- Echocardiography
- Thallium scans and other radioisotope studies
- Ambulatory ECG arrhythmias and/or silent angina
- Left heart catheterization with left ventriculography and coronary angiography: left ventricular end-diastolic pressure; left ventriculography, including contractile abnormality, number of abnormal segments, degree of abnormal contraction and left ventricular ejection fraction
- Coronary angiography—number, severity and location of coronary artery obstructions

IV. Major risk factors for ischemic heart disease
- Cigarette smoking or other use of tobacco
- Family history
- Hypertension
- Blood lipids—total serum cholesterol, low density lipoproteins, high density lipoproteins, triglycerides
- Diabetes mellitus
- Obesity

Most life insurance policies are issued on an individual basis and individually underwritten with the premiums based on that individual's age and current physical status. As of January 1, 1987, $3.7 trillion of individual life insurance and $3.0 trillion of group life insurance were in force in the United States. Of those insured, 60% are male and 85% are between age 20 and 59 years (15,16). The cost of life insurance has diminished steadily over the last 20 years, reflecting lower mortality due to advances in medicine, changes in life style and other factors.

In contrast to life insurance, most health and disability policies are issued on a group basis. In 1987, some 158 million Americans under the age of 65 were covered by some form of group health insurance, and 9 million were covered solely by individual health insurance policies. Causes for the increase in costs of health and disability policies over the past 15 years include advances in medicine, the malpractice crisis and inflation in general.

Insurers underwriting group life and health insurance consider only the relevant characteristics of the *group*, not of the individuals who constitute the group. The premise of group underwriting is that within any large group of individuals (especially in the workplace), only a few harbor medical conditions that would, by individual underwriting standards, warrant either a substandard rating, (an extra premium) or a declination of the risk. The entire group (including the poorer risks) is insured without regard to preexisting conditions when an employer changes carriers. The poorer risks are passed back and forth when employers change carriers on a "no profit—no loss basis." The only exception to this rule concerns late entrants into a group plan. Late entrants are usually required to show proof of insurability, inasmuch as they and their families exhibit an increased incidence of significant health problems.

Individual insurance policies for health or disability are underwritten on a per case basis usually with full disclosure of the prior medical history. There may be an exclusion for preexisting conditions and a 2 year period of contestability (the period of time during which an insurance carrier can challenge the validity of the contract). The care with which writers of individual insurance screen applicants for ischemic heart disease reflects the dramatic rise in medical costs associated with heart disease. The expensive high technology used in the diagnosis and treatment of ischemic heart disease today has been made possible by the sharing effect created by widespread health insurance.

**Availability of insurance and ratings.** Patients with history of ischemic heart disease applying for individual life, disability and medical care coverages are required to pay

higher premiums for these coverages because of the higher probability of a claim payment (death claim, disability claim, or claim for reimbursement of medical expenses) by the insurer. Some applicants will be denied coverage altogether.

**Life insurance.** Most applicants for life insurance who have survived a myocardial infarction will be able to buy life insurance 6 months after the episode. A typical rating for a patient who has recovered from an acute myocardial infarction is 175% plus \$15 × 8 years. The applicant pays a premium that is 175% of standard select insured rates over the life of the policy. In addition, he or she pays \$15 extra per 1,000 dollars of coverage for the first 8 years of the policy. Many companies have several different classes of myocardial infarction ratings, differentiated by clinical history, ECG residuals, left ventricular function, and so forth.

Applicants for life insurance who have a history of angina are generally insurable. A typical rating for an applicant with stable angina pectoris is 175% plus \$7.50 for 8 years. This rating is less than that for myocardial infarction because of the lower anticipated mortality of this condition. Coverage of applicants with unstable angina, imminent cardiac catheterization, angioplasty or bypass surgery may be postponed for a period of several months.

**Disability insurance.** Disability income policies are considered *short-term* (up to 6 months) and *long-term* (more than 6 months). Many employers will provide short-term disability benefits (i.e., sick leave) for 3 to 6 months as part of their basic benefit program. Most long-term disability policies provided through an insurance carrier require a 3 to 6 month waiting period before benefits commence. Most long-term disability policies specify that during the first 2 years of disability, the insured need only be disabled from their own occupation. After 2 years, the insured must be considered disabled from "any reasonable occupation for which they would qualify based on their physical status and training." This requirement can be removed by the payment of an increased premium.

Disability insurance is more difficult to obtain than life insurance for applicants with a documented history of coronary artery disease. Companies frequently limit their liability by offering policies with shortened benefit periods (2- or 5-year benefits) and charging an extra premium ranging from 30% to 200% depending on the clinical history. Many applications will be declined outright especially if the patient has documented severe disease or a very recent clinical event.

**Medical expense reimbursement (health insurance).** As a group, patients with ischemic heart disease incur substantially higher medical expenses than those of the general population. Many insurance companies do not write individual medical expense reimbursement coverage at all. Any offer of insurance extended to such patients would be made after several years free of clinical events, and then only at a substantially increased premium or with a substantial deductible, or both.

**State pools for uninsurables.** The majority of Americans have some type of health insurance (i.e., private, Medicare, Medicaid, and so forth). However, some individuals are unable to obtain any type of personal health insurance because of developmental disabilities, physical or mental impairment or chronic health conditions. The number of uninsurable persons in the United States is estimated at 1 million.

Fifteen states currently have risk-sharing pools that provide access to insurance coverage for these high risk individuals. Funding for these programs varies by state but, in general, the programs are designed to be self-supporting through subscriber premiums. Health insurers doing business in the state usually share in the risk.

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